

Unit 5

Day 4

Factoring Using Integers

Part 4

$$\begin{aligned}
 & \textcircled{9} (x+y+1)^2 - 2(x+y+1)(x-y+3) + (x-y+3)^2 \\
 & w^2 - 2wz + z^2 \qquad (2y-2)^2 / 2(y-1)^2 \\
 & (w-z)^2 \\
 & (x+y+1 - (x-y+3))^2 \\
 & \underline{(2y-2)^2} = (2y-2)(2y-2) = 2(y-1)2(y-1) \\
 & x+y+1 = w \qquad x-y+3 = z \qquad 4(y-1)^2
 \end{aligned}$$

Give and Take Method

$$1) \quad x^4 + x^2y^2 + y^4$$
$$(x^4 + 2x^2y^2 + y^4) - x^2y^2$$

$$(x^2 + y^2)^2 - x^2y^2$$

$$(x^2 + y^2 + xy)(x^2 + y^2 - xy)$$
$$(x^2 + xy + y^2)(x^2 - xy + y^2)$$

$$2) m^4 - 22m^2 + 9$$

$$(m^4 - 6m^2 + 9) - 16m^2$$

$$(m^2 - 3)^2 - 16m^2$$

$$(m^2 - 3 - 4m)(m^2 - 3 + 4m)$$

$$(m^2 - 4m - 3)(m^2 + 4m - 3)$$

3)

$$a^8 + 4$$

$$(a^8 + 4a^4 + 4) - 4a^4$$

$$(a^4 + 2)^2 - 4a^4$$

$$(a^4 + 2 - 2a^2)(a^4 + 2 + 2a^2)$$

$$(a^4 - 2a^2 + 2)(a^4 + 2a^2 + 2)$$

Factor the following, treating it as the difference of squares.

4) $y^{12} - 64$

$$(y^6 - 8)(y^6 + 8)$$

$$(y^2 - 2)(y^4 + 2y^2 + 4)(y^2 + 2)(y^4 - 2y^2 + 4)$$

Factor the SAME PROBLEM, treating it as the difference of cubes.

$$4) y^{12} - 64$$

$$(y^4 - 4)(y^8 + 4y^4 + 16)$$

$$(y^2 + 2)(y^2 - 2)(y^8 + 4y^4 + 16)$$

$$(y^2 + 2)(y^2 - 2)[(y^8 + 8y^4 + 16) - 4y^4]$$

$$(y^2 + 2)(y^2 - 2)(y^4 + 4)^2 - 4y^4$$

$$(y^2 + 2)(y^2 - 2)(y^4 + 4 - 2y^2)(y^4 + 4 + 2y^2)$$

$$(y^2 + 2)(y^2 - 2)(y^4 - 2y^2 + 4)(y^4 + 2y^2 + 4)$$

Homework:

pg 43-44 70-88 even, 89 and

Completing the Square Factoring Worksheet